

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mark Comtois on 3/20/2009.

The application has been amended as follows: Regarding claims 1-2, 4-6, 9-10, 23-24, 26-29, and 36, these claims last filed on 6/11/2008 are now cancelled.

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance: Regarding claim 12, the prior art of record, Stein et al. (US Pat Appl# 2003/0008663) teaches a method of determining the location of a mobile appliance in a wireless communication system having plural base stations 104a-c (Fig. 1A) and at least one repeater 114a (Fig. 1A) for communicating with the mobile appliance 106 (Fig. 1A), and a mobile positioning center 130 (Fig. 1A), and wherein the at least one repeater is connected with a communication tether to the base station (Section 0024), and the mobile position center provides mobile information to the geolocation system, the improvement comprising the step of monitoring the communication system with the geolocation system and determining if a target mobile appliance is served (identification code) by the at least one repeater (Sections 0007-0009 and 0039-0040), wherein the geolocation sensors

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monitor (identification code) the tether (Section 0024) between the at least one repeater and an antenna feed interface for the mobile appliance's signal (Sections 0007-0009 and 0039-0040).

Kennedy et al. (US Pat Appl# 2004/0043775) teaches a mobile positioning center 150 (Fig. 1).

The prior art of record fails to teach a method of determining the location of a mobile appliance in a wireless communication system having plural base stations and at least one repeater for communicating with the mobile appliance, and a mobile positioning center, wherein a plurality of geolocation sensors are co-located with the plural base stations, and wherein the at least one repeaters connected with a communication tether to the base station, and the mobile position center provides mobile information to the geolocation system, the improvement comprising the step of monitoring the communication system with the geolocation system and determining if a target mobile appliance is served by the at least one repeater, wherein the geolocation sensors monitor the tether between the at least one repeater and an antenna feed interface for the mobile appliance's signal.

Stein is vague in teaching a tether being monitored so examiner agrees with applicant remarks made on 1/8/2009.

The prior art of record fails to teach the claimed subject matter as claimed and substantially connected in claims 12 and 14-17.

Regarding claim 13, Stein et al. teaches a method of determining the location of a mobile appliance in a wireless communication system having plural base stations

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104a-c (Fig. 1A) and at least one repeater 114a (Fig. 1A) for communicating with the mobile appliance 106 (Fig. 1A), and a mobile positioning center 130 (Fig. 1A), and wherein the at least one repeater is connected with a communication tether to the base station (Section 0024), and the mobile position center provides mobile information to the geolocation system, the improvement comprising the step of monitoring the communication system with the geolocation system and determining if a target mobile appliance is served (identification code) by the at least one repeater (Sections 0007-0009 and 0039-0040); and, adjusting the time of arrival of the mobile appliances signal based on the determination if the mobile appliance is being served by the one of the at least one repeaters (Sections 0026-0028, 0035, 0039-0040, and 0047).

Kennedy et al. teaches a mobile positioning center 150 (Fig. 1).

Tekinay (US Pat Pub# 2001/0027110) teaches adjusting the time of arrival of the mobile appliances signal (Sections 0011 and 0028).

The prior art of record fails to teach a method of determining the location of a mobile appliance in a wireless communication system having plural base stations and at least one repeater for communicating with the mobile appliance, and a mobile positioning center, wherein a plurality of geolocation sensors are co-located with the plural base stations, and wherein the at least one repeater is connected with a communication tether to the base station, and the mobile position center provides mobile information to the geolocation system, the improvement comprising the step of monitoring the communication system with the geolocation system and determining if a target mobile appliance is served by the at least one repeater; and, adjusting the time

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of arrival of the mobile appliances signal based on the determination if the mobile appliance is being served by the one of the at least one repeaters.

Even though Stein, Kennedy, and Tekinay teaches the limitations the Examiner agrees with applicants remarks filed on 1/8/2009 that one of ordinary skill in art the would not combine the references together.

The prior art of record fails to teach the claimed subject matter as claimed and substantially connected in claims 13 and 18-21.

Regarding claim 30, Stein et al. teaches a method for determining the location of a mobile appliance in a wireless communication system (Section 0007) having plural base stations 104a-c (Fig. 1A) and plural repeaters 114a-c (Fig. 1A), wherein the repeaters relay the mobile appliances signal on the same channel as the channel in which the signal was received (Sections 0024-0025 and 0033), the improvement of using the first signal received from the mobile appliance at each of the plural base stations to determine the location of the mobile appliance (Sections 0008 and 0039-0040).

Kennedy et al. teaches a mobile positioning center 150 (Fig. 1) provides mobile information to assist in the location of the mobile appliance (Sections 0026-0027).

Hymel (US Pat# 6,246,336) teaches disregarding a second signal received from the mobile appliance at each of the plural base stations 416 (Fig. 5).

The prior art or record fails to teach a method for determining the location of a mobile appliance in a wireless communication system having plural base stations and plural repeaters, wherein the repeaters relay the mobile appliances signal on the same

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channel as the channel in which the signal was received, and where a mobile positioning center provides mobile information to assist in the location of the mobile appliance, the improvement of using the first signal received from the mobile appliance at each of the plural base stations to determine the location of the mobile appliance and disregarding a second signal received from the mobile appliance at each of the plural base stations when determining the location of the mobile appliance.

Even though Stein, Kennedy, and Hymel teaches the limitations, the examiner does not think one of ordinary skill in the art would make such a combination. Further applicant's remarks filed on 1/8/2009 further state reasons for allowance.

The prior art of record fails to teach the claimed subject matter as claimed and substantially connected in claims 30-33.

Regarding claim 34, Stein et al. apparatus for estimating the position of a terminal based on identification codes for transmission sources teaches a network overlay geolocation system for locating a mobile in a host wireless communication system (Section 0007), the host wireless communication system having a base station 104a-c (Fig. 1A) and a repeater station 114a (Fig. 1A) connected by a communication tether (Section 0024), the network overlay geolocation system comprising a geolocation sensor (sensing identification code and position of mobile device, Sections 0008 and 0039-0040) attached to the communication tether (Section 0024) between the base station 114a-c (Fig. 1A) and the repeater station 114a (Fig. 1A).

Bloebaum (US Pat# 6,188,351) teaches a geolocation sensor GPS (Fig. 1a) attached to a base station BTS sub 3 (Fig. 1a).

The prior art of record of record fails to teach a network overlay geolocation system for locating a mobile in a host wireless communication system, said host wireless communication system having a base station and a repeater station connected by a communication tether, said network overlay geolocation system comprising a geolocation sensor attached to the communication tether between said base station and said repeater station.

Examiner agrees with applicants remarks filed on 1/8/2009 that Bloebaum is vague in teaching a geolocation sensor attached to a base station. Plus the combination of Bloebaum into Stein is not reasonable for one of ordinary skill in the art to make.

Regarding claim 35, Stein et al. apparatus for estimating the position of a terminal based on identification codes for transmission sources teaches a base station 104a (Fig. 1a) and a repeater station 114a (Fig. 1a) interconnected by a communication tether (Section 0024); for providing mobile information; a network overlay geolocation system with a geolocation sensor co-located at the base station (sensing identification code and position of mobile device, Sections 0007-0008 and 0039-0040); wherein the tether is connected to the base station at an antenna feed interface (Section 0024).

Bloebaum teaches a geolocation sensor GPS (Fig. 1a) located on the tether prior to the interface (to a base station BTS sub 3 (Fig. 1a)).

Kennedy et al. teaches a mobile positioning center 150 (Fig. 1).

The prior art of record fails to teach a wireless communication system providing communication to and from a mobile appliance comprising a base station and a repeater station interconnected by a communication tether; a mobile positioning center for providing mobile information; a network overlay geolocation system with a geolocation sensor co-located at the base station; wherein said tether is connected to said base station at an antenna feed interface, and said geolocation sensor is located on said tether prior to said interface.

The combination of Stein, Bloebaum, and Kennedy would not be reasonable for one of ordinary skill in the art to make. Further, applicants remarks filed on 1/8/2009 further state reasons for allowance.

Regarding claim 37, Stein et al. teaches a method for determining the location of a mobile appliance in a wireless communication system (Fig. 1A) having plural base stations 104a-c (Fig. 1A) and at least one repeater 114a (Fig. 1A) for communicating with the mobile appliance 106 (Fig. 1A), where the wireless communication system has a network overlay geolocation system (Fig. 1A) operably connected thereto, comprising the steps of determining (identification code) whether a signal received from the mobile appliance by the geolocation system has passed through a first repeater (Sections 0007-0009 and 0039-0040), wherein plural signals are received from the mobile appliance by the geolocation system and said first repeater is a tethered repeater (Section 0024); determining if one of the plural signals has passed through the first repeater is based in part on a difference between the times of arrival of two of the plural signals at the geolocation system (Sections 0026-0028 and 102-104); attaching a tag to

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the mobile appliance's signal that passes through the first repeater (Sections 0007-0009 and 0039-0040, it is obvious that a tag is associated with a mobile appliance since it normally sends an identifier in order to be able identify the proper phone or else the base station does not know which phone it is communicating with); determining if one of the plural signals has passed through the first repeater is based in part on the geolocation system operating on the tag (Sections 0007-0009 and 0039-0040, again it is pretty well known that a mobile appliance sends an identifier to the base station); and determining the location of the mobile appliance based in part on the determination of whether a signal received from the mobile appliance by the geolocation system has passed through the first repeater (Sections 0007-0009 and 0039-0040). In Section 0028, Stein teaches receiving plurality of signals and using any combination of the signals to do a measurement. It would be obvious that with the plural of signals a combination could be taking two of the signals and doing a measurement of difference between the two signals.

Kennedy (US 6,952,158) teaches step of determining based in part on a difference between the times of arrival of two of the plural signals at the geolocation system (Col. 1 lines 16-30, Again, it would be obvious that the identified reference signals could be two signals and determining the time differences of arrival between the two signals); attaching a tag to the mobile appliance's signal that passes through the first repeater (Col. 1 lines 16-30, it is obvious that a tag is associated with a mobile appliance since it normally sends an identifier in order to be able identify the proper phone or else the base station does not know which phone it is communicating with);

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determining if one of the plural signals has passed through the first repeater is based in part on the geolocation system operating on the tag (Col. 1 lines 16-30, again it is pretty well known that a mobile appliance sends an identifier to the base station).

Kennedy (US 2003/0069024) teaches a time difference being approximately equal to a known time delay (Abstract and Section 0023, it keeps a record of known delay times associated with locations so when it tries to locate another terminal it can compared the known delay time to the actual delay time in order to locate a mobile appliance).

The prior art of record fails to teach a method of determining the location of a mobile appliance in a wireless communication system having plural base stations and at least one repeater for communicating with the mobile appliance, where the wireless communication system has a network overlay geolocation system operably connected thereto, comprising the steps of determining whether a signal received from the mobile appliance by the geolocation system has passed through a first repeater, wherein plural signals are received from the mobile appliance by the geolocation system and said first repeater is a tethered repeater; determining if one of the plural signals has passed through the first repeater is based in part on a difference between the times of arrival of two of the plural signals at the geolocation system, said time difference being approximately equal to a known repeater time delay; attaching a tag to the mobile appliance's signal that passes through the first repeater; determining if one of the plural signals has passed through the first repeater is based in part on the geolocation system operating on the tag; and determining the location of the mobile appliance

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based in part on the determination of whether a signal received from the mobile appliance by the geolocation system has passed through the first repeater.

The combination of Stein, Kennedy '158, and Kennedy '024 would not be reasonable for one of ordinary skill in the art to make. Further, applicants remarks filed on 1/8/2009 further state reasons for allowance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lockyer discloses data networks. Karabinis discloses a system and method for monitoring terrestrially reused satellite frequencies to reduce potential interference. Bickley discloses a position locating rescue transceiver. McCraw discloses a geolocation techniques for an airborne cellular system. Upton discloses a geolocation method and apparatus for satellite based telecommunications system. Orlor discloses a method and apparatus for transmitting position data using control channels in wireless networks. Chen discloses a geolocation using enhanced timing advance techniques. Dean discloses a method and system for determining mobile station position. Weissman discloses a repeater with diversity transmission.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW WENDELL whose telephone number is (571)272-0557. The examiner can normally be reached on 7:30-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew Wendell/
Examiner, Art Unit 2618

/Nay A. Maung/
Supervisory Patent Examiner, Art
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3/24/2009